

*THE*  
**CONDENSED  
CHEMICAL  
DICTIONARY**

*Sixth Edition*

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**plant hormones.** Organic compounds, other than nutrients, which in small amounts promote, inhibit or modify any physiological process within the plant. Strict usage limits the term plant hormone to materials produced by growing plants. Similar substances of synthetic origin are usually referred to as growth regulators or growth substances. In many discussions the several terms are used synonymously and the term auxin includes all substances of this kind. An example which occurs naturally in the plant is 3-indoleacetic acid. This is responsible for cell elongation in the stem. Gibberellin, originally found in the fungus *Gibberella*, is known to exist in, and affect stem elongation in biennials. Other effects are to regulate root growth (indolebutyric acid,  $\alpha$ -naphthalene acetic acid); fruit development in plants (indolebutyric acid); loss of leaves ( $\alpha$ -naphthalene acetic acid); prevention of fall of fruit (2,4-D); killing of plants (2,4-D).

**"Plaskon."** <sup>175</sup> See "Halon."

**plasma.**

1. The liquid part of the blood separated by centrifugation.
2. The mixture of electrons and gaseous ions (electrically charged atoms or parts of atoms), with or without neutral atoms, which forms when any substance is heated to very high temperatures (i.e., 10,000 to 50,000°F or higher). A plasma may be formed by an electric arc of sufficient power, by sonic shock waves, or by other very sudden releases of very large quantities of energy, as in nuclear processes of fission or fusion. Uses are for spraying heat resistant coatings on missile cone surfaces and rocket nozzles, and to study high temperature chemistry and physics. In some cases the term plasma is used for materials that are very hot but still below the temperature at which electrons and ions are formed in appreciable quantities.

**plaster.**

1. A paste made by mixing together varying proportions of lime, sand and water, together with hair or other binding material. Used as a surface coating for walls, ceilings and partitions in buildings.
2. Plaster of paris, usually used for ornamental or intricate parts of plaster work.

**plaster, hard-finished.** Plaster made from over-burnt gypsum, which is dipped in alum solution and calcined a second time. Keene's cement and Parian cement are examples. See gypsum cements.

**plaster of Paris.** See gypsum cements.

**plaster retarders.** Substances used to slow up the setting of plaster. Blood, glue, dextrin, and hair are among those used.

**"Plastex."** <sup>160</sup> Trademark of wires and cables with oilproof and flameproof polyvinyl

chloride insulation which resists the action of oxygen, ozone, and sunlight; has high dielectric strength, high resistance to water, acids, and alkalis. It is firm, dense, and has a smooth finish. Supplied in several colors.

**plastic.** A material that contains as an essential ingredient an organic substance of large molecular weight, is solid in its finished state, and, at some stage in its manufacture, or in its processing into finished articles, can be shaped by flow (definition from ASTM D883-54T). The term is sometimes used to include inorganic materials of similar character. The terms plastic and resin (q.v.) are used in overlapping senses but resin applies more specifically to the more or less chemically homogeneous polymers used as starting materials in the production of molded articles while plastic signifies the final solid product, which may contain fillers, plasticizers, stabilizers, pigments, etc.

**"Plasticizer 136."** <sup>175</sup> Brand name for an aryl alkyl hydrocarbon, used as a secondary plasticizer in vinyl formulations.

Containers: 55-gal steel drums.

**plasticizers.** Materials added to a plastic to facilitate compounding and improve flexibility and other properties of the finished product. The first industrial plasticizer was camphor, used to make "Celluloid" from nitrocellulose. At present, the important plasticizers are nonvolatile organic liquids or low-melting solids, especially the phthalate, adipate and sebacate esters and aryl phosphate esters. Plasticizers are used principally in the vinyl and cellulosic resins.

**"Plasticone Red."** <sup>141</sup> Trade name for pyrazolone red color pigments.

Properties: Good light resistance and heat resistance. Good resistance to acid and alkali. Non-bleeding in water and organic vehicles.

Uses: Paints, enamels, lacquers, plastics, rubber, printing inks, textiles and floor coverings.

**"Plastic Steel."** <sup>445</sup> Trade name for a mixture of steel and plastic materials used for repairing broken machinery, and for making plastic and rubber molds, metal forming dies, etc.

**"Plastimer."** <sup>282</sup> Trade name for a castor oil residue.

Typical properties: Dark brown color; acid value 108; iodine value 102; saponification value, 195; sp. gr. 0.94; refractive index 1.4795 (25°C).

Containers: Drums.

Uses: As plasticizer in dark colored compounds; can be sulfonated to form detergents.

**plastisol.** Liquid dispersion of finely divided resin in a plasticizer. It is usually 100% solid with no volatiles; when volatile content exceeds 5% of the total weight it is

\*See "I.C.C. Shipping Regulations," page xiii.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.

called an organosol. When the plastisol is heated, the plasticizer solvates the resin particles, and the mass gels. With continued application of heat the mass fuses to become a conventional thermo-plastic material.

Plastisols are useful for molding, casting films, or coating, or printing with synthetic resins, often without the use of volatile solvents or high processing temperatures.

**"Plasto."** <sup>243</sup> Trademark for a line of solvent-soluble dyes used for coloring plastics.

**"Plastogen."** <sup>69</sup> Trademark for a plasticizing agent.

Properties: Liquid, amber to mahogany; sp.gr. 0.81-0.84; acid number 1.0-1.1.

Uses: Plasticizer and softener in all elastomers; effective in sponge rubber.

**"Plastolein."** <sup>242</sup> Trademark for a line of plasticizers for vinyls, cellulose and synthetic rubbers. Primarily composed of esters and polyesters of azelaic and pelargonic acids.

plate glass. See glass.

**"Platformate."** <sup>416</sup> Trademark for the catalytic reformate product produced by the Platforming process; i.e., an aromatic-rich hydrocarbon mixture. See "Platforming" process.

**"Platforming" Process.** <sup>416</sup> Patented process using special platinum-containing catalyst for making high octane gasoline and/or a highly aromatic fraction for subsequent recovery of pure aromatics. Reactions include aromatization, dehydrogenation, cyclization, isomerization and hydrocracking. Reaction product may contain up to 60% aromatics. By-product hydrogen also is produced.

**platinic-ammonium chloride** (ammonium chloroplatinate; platinic sal ammoniac; platinum-ammonium chloride)  $(\text{NH}_4)_2\text{PtCl}_6$ .

Properties: Orange-red crystals, or yellow powder. Slightly soluble in water; insoluble in alcohol.

Constants: Sp.gr. 3.06; m.p., decomposes.

Grades: Technical; C.P.

Containers: Glass bottles.

Uses: Plating; platinum sponge.

Shipping regulations: None.\*

**platinic chloride.** See chloroplatinic acid; platinum chloride.

**platinic sal ammoniac.** See platinic-ammonium chloride.

**platinic-sodium chloride** (platinum-sodium chloride; sodium chloroplatinate; sodium platinichloride)  $\text{Na}_2\text{PtCl}_6 \cdot 4\text{H}_2\text{O}$ .

Properties: Yellow powder. Soluble in alcohol, water.

Grades: Technical; C.P.

Containers: Glass bottles.

Uses: Etching on zinc; ink (indelible); microscopy; mirrors; medicine; photography; plating; catalyst; determination of potassium.

**platinic sulfate.** See platinum sulfate.

**platinous-ammonium chloride** (ammonium chloroplatinite; platinous sal ammoniac; platinum-ammonium chloride)

$\text{PtCl}_2 \cdot 2\text{NH}_4\text{Cl}$ .

Properties: Dark ruby-red crystals. Soluble in water; insoluble in alcohol.

Constants: M.p., decomposes; sp.gr. 2.94.

Grades: Technical.

Containers: Glass bottles.

Use: Photography.

Shipping regulations: None.\*

**platinous chloride.** See platinum dichloride.

**platinous iodide.** See platinum iodide.

**platinous-potassium chloride.** See potassium chloroplatinite.

**platinous sal ammoniac.** See platinous-ammonium chloride.

**platinous-sodium chloride** (platinum-sodium chloride; sodium chloroplatinite; sodium platinochloride)  $\text{Na}_2\text{PtCl}_4 \cdot 4\text{H}_2\text{O}$ .

Properties: Dark red crystals. Soluble in water.

**platinum Pt.** Element of atomic number 78, group VIII of the periodic system. See also platinum black.

Properties: Silvery-white ductile metal.

Does not tarnish at any temperature. Insoluble in mineral and organic acids; soluble in aqua regia. Attacked by fused alkalis.

Constants: Sp.gr. 21.45; m.p. 1773.5°C; Brinell hardness, hard 97, annealed 42 (i.e., harder than silver or gold).

Derivation: Occurs alluvially in Russia, Colombia, Alaska; mined like gold in South Africa; main source is now as a by-product in electrolytic recovery of nickel from Canadian nickel ores. The natural material is generally admixed with the other platinum group metals and with gold, iron, etc. The pure metal is obtained by dissolving the crude material in aqua regia, precipitating the platinum by ammonium chloride as ammonium platinum chloride, igniting the precipitate to form platinum sponge. This is then melted in the oxyhydrogen flame or in an electric furnace.

Grades: Physically pure (99.99%); chemically pure (99.9%); crucible platinum (99.5%); commercial (99.0%).

Uses: Catalyst (nitric acid, sulfuric acid, etc.); laboratory ware of all kinds (dishes, crucibles, electrodes, wire, etc.); industrial equipment; spinnerets for rayon manufacture; jewelry; dentistry; electrical contacts; thermocouples; electroplating; high temperature furnace lining.

**platinum-ammonium chloride.** See platinic-ammonium chloride and platinous-ammonium chloride.

**platinum (ous) barium cyanide** (barium platinocyanide; barium cyanoplatinite)

$\text{BaPt}(\text{CN})_4 \cdot 4\text{H}_2\text{O}$ .

Properties: Yellow or green crystals; m.p.

\*See "I. C. C. Shipping Regulations," page xiii.

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